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# SEED DISINFECTION

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Seed disinfection before planting is recommended to prevent the development of diseases caused by organisms carried on the seed. Disease-producing organisms on the seed are difficult to detect. Consequently, seed disinfection is urged as a matter of insurance in the production of a healthy crop. New seed should be planted because old seed are less viable and are more liable to be damaged by disinfection.

**Corrosive sublimate** or bichloride of mercury is one of the commonly used, reliable seed disinfectants. This poison can be purchased at local drug stores in tablet or crystal form. One tablet dissolved in one pint of water or one ounce of the crystals in seven and one-half gallons of water will give a solution strength of 1:1,000, which is the concentration most used in seed disinfection.

Prepare a volume of solution about three times as great as the volume of seed to be treated. Tie the seed securely in a loose cloth (cheesecloth) bag which has been filled one-third full of seed and submerge in the solution, agitating sufficiently to remove air bubbles, for various lengths of time depending upon the kind of seed. After removing from the solution, the seed should be rinsed in several changes of clear water, allowed to drain a few minutes and then spread out in a well-ventilated place in the shade to dry. **Corrosive sublimate is a deadly poison and should be handled accordingly.** Do not use metal containers because corrosive sublimate will corrode them. The length of time for immersing some of the truck crop seed is as follows: Cabbage, cauliflower, mustard and other crucifers 15-20 minutes; cucumbers, watermelons, cantaloupes and other cucurbits 10 minutes; tomatoes, peppers and eggplants 5-8 minutes. Potatoes are also treated with this disinfectant for the control of diseases known as scab and scurf. The uncut tubers should be soaked in this 1:1,000 strength solution for 1½ to two hours. Then they can be dried and cut into seed pieces when desired. Gladioli corms should be soaked in 1:1,000 corrosive sublimate solution for six hours for effective control of the common disease characterized by the circular, brownish-black pits of the corm known as scab.* This treatment is not effective against disease-producing organisms carried in the soil.

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* J. R. Watson, Entomologist, Agricultural Experiment Station, also recommends this treatment for thrips control.

**Formaldehyde** solution, a widely used disinfectant, is used for the control of potato scab and scurf. The uncut tubers should be soaked for two hours in a 1:240 solution of formaldehyde prepared by diluting one pint of this liquid in 30 gallons of water. Gladioli corms also can be treated for the disease mentioned in the preceding paragraph by soaking them two hours in a 1:80 solution of formaldehyde prepared by diluting one pint of this liquid in 10 gallons of water.*

Other materials which may be used for disinfecting seed and which also provide some protection against disease-producing organisms carried in the soil are as follows:

**Copper sulfate** solution, prepared by dissolving one ounce of the crystals in one gallon water, is also a good disinfectant for almost all kinds of seed that will stand soaking. The seed to be treated should be prepared for liquid treatment as already mentioned and soaked for one hour in this solution. The seed then can be drained a few minutes, dried and planted. Two pounds of copper sulfate dissolved in 30 gallons water will treat 125 pounds of seed at one time.

**Organic mercury** compounds sold under commercial names are good disinfectants for almost all kinds of seed. The compounds can be dissolved in water and used as a liquid bath or they can be used in the form of dust. There are advantages of each form of application, depending upon the seed to be treated. Certain seed, such as beans and peas, should not be disinfected by soaking in any liquid. The seed coat breaks after taking up water and the seed are permanently injured. The dust treatment is just as effective for them and also for small lots of flower seed, which would be difficult to handle when wet. The organic mercury compounds with full directions for use are sold by most seed stores.

**Red copper oxide** is another very valuable disinfectant used as dust for treating many kinds of flower and vegetable seed. For small seed, such as most flower seed and the smaller vegetables, use one level teaspoonful to each pound of seed. For the larger seed, such as cucumber, peas, etc., use one level teaspoonful to five pounds of seed. A small amount of seed can be mixed with the disinfectant in the original seed-packet. Larger amounts can be mixed in closed fruit jars of convenient sizes, or in a revolving drum arranged after the fashion of a barrel churn. Mix thoroughly so that the outer coat of every seed is covered with the disinfectant. This disinfectant may be harmful when seed are planted in pure sand. It should be used only when of a bright brick-red color, as it is ineffective after it turns black.

**Zinc oxide** powder is another chemical used for the disinfection of many seeds. It has been found especially effective for treating the seed of most of the cultivated crucifers, such as cabbage, cauliflower, radish, etc. The zinc oxide should be used at the rate of two level teaspoonfuls per pound of seed, or 1½ to 2 percent by weight for larger amounts. Seed and disinfectant should be mixed thoroughly in a closed container.

**Hot water** treatment for the control of seed-borne diseases has been very effectively used where the parasite hibernates within the seed. This treatment is exacting, because the high temperature necessary to kill the parasite is very close to the temperature that will kill the seed. Further details will be furnished upon inquiry.